

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
This application currently names joint inventors.

2. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
3. Claims 1-3, 5-21, 26-29, and 31-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Solomon et al (U.S. Patent No. 7,386,010) in view of Yusko et al (U.S. PG-Pub 2004/0001496).

Regarding claims 1 and 8, Solomon et al (Solomon) discloses a method in a network element comprising the steps of:

converting (by a multi-protocol converter 44 in FIG. 2) a native Point to Point Protocol (PPP) protocol data units (PDUs) into PPP PDUs within a uniform Point to

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Point protocol over Ethernet (PPPoE) encapsulation (col. 4, lines 54-67 and col. 6, lines 11-50); and

transmitting the uniformly encapsulated PPPoE PDUs to a packet network (22 in FIG. 1 and 2)

However, Solomon does not explicitly teach whether the native PPP is based on PPPoA or PPPoHDL (PPP based protocols other than PPPoE).

Yusko et al (Yusko) teaches that PPPoA and PPPoHDL are commonly used for PPP based protocols (Paragraph 0002).

Those of skill in the art would have been motivated by Yusko to use PPPoA or PPPoHDL protocols for the native PPP of Solomon,

Therefore, it would have been obvious to one having ordinary skill in the art to add functions into the converter of Solomon to adapt a plurality of PPP based protocols such as PPPoA and PPPoHDL .

Regarding claim 2, 40, 41 and 43, refer to claim 1. A session identifier is inherently included in the PPP frames according to the PPP protocols. It would have been obvious to one having ordinary skill in the art to convert all PPP frame using the session identifier to integrate all frames having a same identifier.

Regarding claim 3, refer to claim 2. Solomon further discloses that the protocol converter has a first port (a native interface 40 in FIG.2) and a second port (a network interface 42 in FIG. 2), see col. 5, lines 25-37.

Regarding claim 5, refer to the discussion for claims 2 and 3. Solomon further discloses that the protocol converter enables multiple endpoints to communicate over a

common layer 2 network 22 (col. 4, lines 42-53). Therefore, the network interface 42 (the second port) inherently comprises a multiplexing function to combine a plurality of PPPoE frames.

Regarding claim 6, Solomon further discloses that a plurality of edge devices 26 (a set of service provider points of presence), see FIG. 1.

Regarding claims 7 and 34, refer to claims 1 and 8. Solomon further discloses that the protocol converter comprises a microprocessor programmed in software to perform the functions (col. 5, lines 58-60).

Regarding claim 9, 14, 18, 26, 35, and 44, refer to claim 2. Solomon does not explicitly teach a table (a data structure) to provide a session identifier as recited in claim. However it would have been obvious to one having ordinary skill in the art to use a table for the session identifier to integrate all frames having a same identifier.

Regarding claim 10, 15, 19, 27, 31, 36, 45, and 51, a proxy module is in claim is equivalent to the edge device 26 in FIG. 1.

Regarding claims 11, 16, 20, 28, 32, 37, 46, and 52, it would have been obvious to one having ordinary skill in the art not to create the data structure until the edge device attempts to create an entry in the data structure, i.e., the data structure is created whenever a PPP session is established.

Regarding claims 12, 38, and 47, refer to claim 1. The protocol converter also converts the PPPoE frames to PPPoA or PPPHDLC frames (frames from the network 22 to a client node 24 in FIG. 1).

Regarding claims 13, 17, 21, 29, 33, 39, 42, and 50, Solomon further discloses that the protocol converter is agnostic the encapsulation of the PPP PDUs to be converted (col. 6, lines 28-50).

Regarding claims 48 and 49, refer to claims 2 and 9.

Regarding claims 53 and 57, refer to the discussion for claim 2, however, Solomon does not teach a demux to separate the IP packets and PPPoX data packets and a virtual router for transmitting the IP packets. It would have been obvious to one having ordinary skill in the art to provide a demux and a virtual router in the system 20 (FIG. 1) to transmit the IP packets to a different network from a network for PPP, if necessary.

Regarding claim 54, refer to the discussion for claim 9.

Regarding claim 55, refer to the discussion for claim 10.

Regarding claim 56, refer to the discussion for claim 11.

Regarding claim 58, refer to the discussion for claim 17.

Allowable Subject Matter

4. Claims 4 and 22-25 are allowed.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SOON-DONG D. HYUN whose telephone number is (571)272-3121. The examiner can normally be reached on M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H. Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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